

that one would hardly suspect their character without seeing the cleavage surfaces.

Fossils of any kind are extremely rare in the gravel of our immediate vicinity, and in the course of a lifetime he had picked up less than half a dozen quartzose pebbles pseudomorphic of a coral like *Favosites*, and with some obscure brachiopod impressions.

In the locality, from which the jointed specimens of quartzite of the Potsdam sandstone presented this evening were collected, he looked in vain for *Scolithus linearis*, viewed as a characteristic fossil of this formation. Some miles further off, near Sheridan Station, where an exposure of the same rock was less metamorphosed, and in part consisted of friable sand, he picked up a single specimen which contained the fossil.

JANUARY 10, 1882.

The President, Dr. LEIDY, in the chair.

Twenty-six persons present.

Three more Fresh-water Sponges.—Mr. EDW. POTTS had described in the Proceedings under date of July 26, 1881, a new species of *Carterella*, *C. latitenta*; his later identified findings during that year are here mentioned.

MEYENIA CRATERIFORMA. This sponge, first found during September, 1881, in the Brandywine, near Chadd's Ford, is of very delicate structure. Its framework of skeleton spicules is exceedingly meagre and slightly bound together, scarcely amounting to a system of meshes and polyhedral interspaces as in most other sponges; and as a consequence we find the numerous small white statospheres lying in recesses far larger than themselves, freely exposed to view from the upper or outer side of the sponge. This trait is only seen in the thinnest of encrusting sponges.

The skeleton spicules may be described as acerate, gradually sharp-pointed, sparsely and very minutely microspined. With these were mingled smaller and more slender forms, which may be an earlier stage of the same, or perhaps are dermal spicules; but beside these may be seen upon the undisturbed surface of the sponge two other forms—one, cylindrical, slender, with truncate ends—the other similar in all respects to the long birotulates which surround the statospheres. The last have most probably been misplaced from their normal position.

The birotulate spicules surrounding the statospheres, as compared with those of any other described sponges, and with the diameter of their own rotules, are relatively very long. The diameter of the completed statosphere is to that of the contained chitinous body, about as 10 to 7, and the diameter of the rotules, while per-

haps double that of the shaft, is only from one-fifth to one-seventh of their length. A number of long, sharp spines occur near each extremity of the shaft. These birotulates are disposed, as is usual, very regularly and densely upon the surface of the chitinous body; one end of each being thus supported, the other forming a second or outer coat or surface. One peculiarity, however, of their arrangement has suggested the specific name now given. In most other species the length of the foraminal tube is fixed, or approximately indicated, by the thickness of the spiculiferous coat, which closes up around and against it. In this, however, on account of the unusual length of the spicules and their necessary radial direction, a space is left about the foramen, in the centre of which the tubule appears as an elongated cone; the whole having the appearance of a volcanic crater. In mounted specimens, probably as a result of violence in making sections of the statoblasts, these spicules frequently deviate from a direct radial position and cross each other's lines in a curious manner. This sponge has also been found in the Schuylkill River and in some of its smaller branches.

HETEROMEYENIA RYDERII. This beautiful green sponge has, as yet, only been found in a branch of Cobb's Creek, a small stream whose waters reach the Delaware River below Philadelphia. It occupied the upper surface of large stones in the bed of the stream; some of the patches being four or five inches in diameter and about one-fourth of an inch thick. The surface is somewhat irregular, occasionally rising into rounded lobes. The efferent canals are deeply channeled in the upper surface of the sponge; five or six sometimes converging to a common orifice.

The skeleton spicules are stout, cylindrical, slightly curved, gradually sharp-pointed, conspicuously spined, excepting at the extremities; spines conical, sharp-pointed; when largest often curving forward or towards the adjacent ends of the spicules. As is generally the case with spined skeleton spicules, they are but slightly fasciculated; being mostly arranged in a simple series, single spicules meeting or diverging from other spicules, thus forming a delicate network, supporting the sponge flesh. With these are mingled a few, more slender, smooth spicules which may be immature, or the true dermal spicules of the sponge.

The statospheres are numerous, rather small, surrounded *first* by a series of birotulates, short, stout, the rotulae about equal in diameter to the length of the shaft. The shafts are cylindrical or somewhat wider toward the rotules, having frequently one or more long spines near the centre. Margins of the rotulae marked with an infinity of shallow cuts not amounting to notches.

The *second* series of birotulates, which, more than in either of the other species of this genus, marks this as a deviation from the familiar *Meyenia* type, are very different from the first. They are nearly double the length of the former, much fewer in number, rather regularly interspersed among them; the rotules are repre-

sented by six, eight or more short recurved hooks, at each end of the shaft, which is cylindrical and studded with numerous spines, equal in length to the hooked rays of the rotulæ, and curving like them from the extremities. This species is respectfully dedicated by the discoverer to his friend, Mr. John A. Ryder, in acknowledgment of much excellent advice, assistance and encouragement.

TUBELLA PENNSYLVANICA. The genus *Tubella*, as established by Mr. H. J. Carter, Feb. 1881, was represented by four species, three originally described by Dr. Bowerbank (as *Spongillas*), and one by Mr. Carter—all collected in the Amazon River, South America. It does not appear that any have been described from other localities. It was therefore with much pleasure and some surprise that while examining material collected at Lehigh Gap, Pa., in November last, Mr. Potts came upon undoubted specimens of the same genus. It differs from *Meyenia* in the fact that the rotulæ of the spicules surrounding the statospheres are of unequal diameters; the larger one being placed next the chitinous coat. This species, whose peculiarities do not tally with those of any of the four above mentioned, may be thus described:

Sponge minute, encrusting, thin; the skeleton spiculæ arranged in a simple series of single non-fasciculated spicules, in the interspaces of which the statospheres are abundant.

Skeleton spicules very variable in size and shape, but all entirely and coarsely spined; rounded or abruptly pointed at the extremities.

Dermal spicules absent or undetermined.

Statospheres, numerous, small; granular coating thin but extending to or somewhat beyond the outer ends of the birotulæ. Length of the inequibirotulæ about equal to the diameter of the larger disk, which is placed against the chitinous coat. Margin of larger disk generally entire, sub-circular; outer surface flat, table-like, the margin sometimes slightly incurved. This surface is not infrequently warped or twisted into an irregular outline. The outer disk, in the great majority of cases, is about one-fifth the diameter of the inner, but varies from, say, one-sixth to equality, which is, however, rarely observed. Its margin also appears to be generally entire, but it is undoubtedly sometimes divided into six or eight rays. The inner surface of the larger disk is also occasionally marked with rib-like rays and still more rarely the margin between the rays is wanting.

These, as before stated, are all the species whose novelty has been definitely determined; but amongst the large amount of material collected are doubtless others, belonging to the genera *Spongilla* and *Meyenia*, whose distinguishing peculiarities are less obvious, and where close study will be needed to define them.